

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL DALPIAZ, ULRICH SCHULZE-GANZLIN,
WERNER GUNTHER, and JURGEN ZIMMERMANN

Appeal 2008-3709
Application 10/644,992¹
Technology Center 2800

Decided: January 26, 2009

Before KENNETH W. HAIRSTON, JOHN A. JEFFERY, and MARC S.
HOFF, *Administrative Patent Judges*.

HOFF, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134 from a Final Rejection of
claim 1-4, 6-19, and 21-29.² We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

¹ Application filed August 21, 2003. The real party in interest is Sirona
Dental Systems GmbH & Co. KG.

² Claims 5 and 20 have been canceled.

Appellants' invention relates to a system and method for positioning a dental X-ray apparatus. The system includes a keyboard and display, and a pointing apparatus for selecting an area of a displayed X-ray image. The system further includes a storage area which stores at least one digitized X-ray image and information concerning the X-ray apparatus. In a preferred embodiment, the information concerning the X-ray apparatus relates to coordinates of trajectories stored in relation to the digitized X-ray image (Spec. 2-4).

Claim 1 is exemplary:

1. A system for positioning a dental X-ray apparatus, comprising:
an input and output device for interactive control,
a storage area, in which at least one panoramic digitized dental X-ray image and information concerning the dental X-ray apparatus assignable to the digitized dental X-ray image are stored,
a computer interface, via which information can be interchanged with the dental X-ray apparatus,
means for selecting areas in the digitized dental X-ray image, and
a processing unit which effects calculations based on the digitized dental X-ray image, the relevant information concerning the dental X-ray apparatus, and the selected area, in order to ascertain control data for controlling the dental X-ray apparatus such that the selected area is covered when a new dental X-ray image is made, the information concerning the X-ray apparatus comprises coordinates of a trajectory which have been saved in relation to the digitized X-ray image, the processing unit further effects calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus carried out at a certain point of time.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Relihan	US 6,233,310 B1	May 15, 2001
Milnes	US 6,463,121 B1	Oct. 8, 2002

Claims 1-4, 6-9, 11, 12, 14-19, 21, 22, 24, 25, and 27-29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Milnes.

Claims 10, 13, 23, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Milnes in view of Relihan.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the Appeal Brief (filed September 13, 2007), the Reply Brief (filed December 17, 2007), and the Examiner's Answer (mailed October 15, 2007) for their respective details.

ISSUE

The principal issue in the appeal before us is:

Did Appellants demonstrate that the Examiner erred in finding that Milnes teaches a processing unit which effects calculations based on, *inter alia*, information concerning the coordinates of a trajectory of the X-ray apparatus which have been saved in relation to a digitized X-ray image?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

The Invention

1. According to Appellants, the invention concerns a system and method for positioning a dental X-ray apparatus. The system includes a keyboard and display, and a pointing apparatus for selecting an area of a displayed X-ray image (Spec. 2).
2. The system further includes a storage area which stores at least one digitized X-ray image and information concerning the X-ray apparatus.

In a preferred embodiment, the information concerning the X-ray apparatus relates to coordinates of trajectories stored in relation to the digitized X-ray image (Spec. 4).

Milnes

3. Milnes teaches a system and method for interactively processing a selection point for an X-ray exposure based on a previous X-ray exposure (col. 1, ll. 50-52).

4. Milnes teaches that "X-ray gantry and table positions are stored automatically as part of capturing the first exposure" (col. 4, ll. 13-14).

Relihan

5. Relihan teaches an exposure management and control system and method for x-ray technique selection (col. 1, ll. 66-67).

Dictionary definition of "trajectory"

6. "Trajectory" is defined as:

1. The curve described by a projectile, rocket, or the like, in its flight.
2. The path described by a body moving under the action of given forces.

The Random House College Dictionary, Revised Edition, 1984.

PRINCIPLES OF LAW

"A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference." *See In re Buszard*, 504 F.3d 1364, 1366 (Fed. Cir. 2007) (quoting *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994)).

"Anticipation of a patent claim requires a finding that the claim at issue 'reads on' a prior art reference." *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d

1342, 1346 (Fed. Cir. 1999) (quoting *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 781 (Fed. Cir. 1985)).

Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 102 begins with a determination of the scope of the claim. We determine the scope of the claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The properly interpreted claim must then be compared with the prior art.

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

In *KSR*, the Supreme Court emphasized “the need for caution in granting a patent based on the combination of elements found in the prior

art,” *id.* at 1739, and discussed circumstances in which a patent might be determined to be obvious. In particular, the Supreme Court emphasized that “the principles laid down in *Graham* reaffirmed the ‘functional approach’ of *Hotchkiss*, 11 How. 248.” *KSR*, 127 S.Ct. at 1739 (citing *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966)) (emphasis added)), and reaffirmed principles based on its precedent that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* The Court explained:

When a work is available in one form of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740. The operative question in this “functional approach” is thus “whether the improvement is more than the predictable use of prior art elements according to their established functions.” *Id.*

ANALYSIS

Claims 1-4, 6-9, 11, 12, 14-19, 21, 22, 24, 25, and 27-29

Claims 1 and 16, the only independent claims in the application, both recite calculation (or computation) based on, *inter alia*, a digitized dental X-ray image and relevant information concerning a dental X-ray apparatus in order to ascertain control data for controlling the X-ray apparatus such that a selected area is covered when a new dental X-ray image is made, the

information concerning the X-ray apparatus comprising coordinates of a *trajectory* which have been saved in relation to the digitized X-ray image, the processing unit further effecting calculations of the trajectory which gives knowledge of movement of the dental X-ray apparatus (emphasis added).

The Examiner argues that because Milnes teaches storing the positions of the X-ray gantry and table along with data from the first X-ray exposure (Ans. 9), and further teaches that the processing unit moves the X-ray apparatus to the selected area to acquire the next X-ray image (Ans. 9), Milnes's processor "must calculate a trajectory that consists of positions of the X-ray apparatus as a function of time" (Ans. 10).

Whether the processor of Milnes calculates a trajectory for the X-ray apparatus to follow, however, is not directly relevant to whether Milnes teaches the limitations of the claimed invention. Milnes teaches an embodiment in which "X-ray gantry and table positions are stored automatically as part of capturing the first exposure" (FF 4). One may fairly infer that Milnes teaches that coordinates of the *position* of the X-ray gantry and table, as of the moment of the first X-ray exposure, are saved in relation to the digitized X-ray image.

Claims 1 and 16 require the coordinates of a *trajectory*, rather than a *position*. Because the term "trajectory" refers to a path or curve described by a moving body (FF 6), one must refer to a bare minimum of *two* positions of a moving body in order to describe a trajectory. Milnes contains no teaching of saving the coordinates of *two or more* positions of a moving body in relation to a digitized X-ray image. Milnes therefore does not teach all the

limitations of claim 1 or claim 16. We thus find error in the Examiner's rejection of claims 1 and 16, as well as the rejection of claims 2-4, 6-9, 11, 12, 14, 15, 17-19, 21, 22, 24, 25, and 27-29 which depend therefrom, under 35 U.S.C. § 102.

Claims 10, 13, 23, and 26

These claims stand rejected as unpatentable over the combination of Milnes and Relihan. We have reviewed the patent to Relihan and find that it does not cure the deficiencies of Milnes, explained *supra* with respect to independent claims 1 and 16, from which these claims depend. We therefore reverse the rejection of claims 10, 13, 23, and 26, for the reasons expressed with respect to claims 1 and 16, *supra*.

CONCLUSIONS OF LAW

Appellants demonstrated that the Examiner erred in finding that Milnes teaches a processing unit which effects calculations based on, *inter alia*, information concerning the coordinates of a trajectory of the X-ray apparatus which have been saved in relation to a digitized X-ray image.

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ORDER

The Examiner's rejection of claims 1-4, 6-19, and 21-29 is reversed.

REVERSED

ELD

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